

IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicant:	Yoshiyuki ISHII et al.	Conf.:	4769
Appl. No.:	10/725,417	Group:	3721
Filed:	December 3, 2003	Examiner:	S. TAWFIK
For:	METHOD AND SYSTEM FOR CONTROLLING MANUFACTURE OF A SHEET MATERIAL		

BRIEF ON APPEAL

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is an appeal from the December 22, 2006 Final Rejection of claims 1, 6, 7, 18, 21, 22, and 26-28.

(i) Real party in interest.

The real party in interest in this appeal is FUJIFILM CORPORATION, the Assignee of the present application.

(ii) Related appeals and Interferences.

There are no related appeals or Interferences.

(iii) Status of claims.

Claims 1, 6, 7, 18, 21, 22, and 26-28 stand rejected. Claims 2-5, 8-17, 19, 20, and 23-25 have been cancelled.

(iv) Status of amendments.

No amendment of the claims was proposed subsequent to the Final Rejection.

(v) Summary of claimed subject matter.

The present invention relates to the processing of sheet materials, and more specifically, for instance, to the manner in which sheet materials are conveyed in connection with collecting and wrapping the sheet materials. Specification, page 1, 12th-15th lines up from the bottom. In this invention, sheet detectors are disposed at an entrance side and at exit sides of a branch path. In accordance with the present invention, conveyance or manufacture of sheets or sheet products is stopped if passage of the sheets or the sheet products is not detected by a sheet detector at one of the exit sides of the branch path toward which the sheets or the processed products of the sheets are conveyed ***after a predetermined time subsequent to when another sheet detector at the entrance side of the branch path detects passage of the sheets or processed products of the sheets.*** This is illustrated for instance in Figure 4B, step 150 (discussed in the last full paragraph on page 27 of the specification) and in step 104 in Figure 4A. Accordingly, with this invention, conveyance or manufacture is stopped quickly when a failure occurs in any branch path. In this way, the time necessary for searching for missing sheets or processed products of sheets is reduced, and higher production efficiency is enabled. Appellants' invention is defined in independent claims 1, 6, and 18 as indicated below.

Claim 1 recites a method for controlling manufacture of a sheet material cut into a plurality of sheets of predetermined size by cutting the sheet material into the plurality of sheets of predetermined size, detecting passage of the sheets or of products made from the sheets by sheet detectors disposed at entrance and exit sides of each of the processing operations or the processing sections where the sheets or sheet products enter and exit the processing area, and controlling treatment of the sheets or of the sheet products based on detection by the sheet detectors. The cutting step is disclosed, e.g., in the specification on page 10 at lines 3-19. See also Figure 1, reference numeral 20A. The detecting step is disclosed, e.g., in the specification from line 15 on page 14 through line 7 on page 16. See also Figure 2, reference numerals 60A, 60B, and 60C. The control step is disclosed, e.g., in lines 9-23 on page 27. See also Figures 4A and 4B, steps 104 and 150. The operation section of the apparatus employed in the claimed method comprises a branch path for sorting the sheets or sheet products being conveyed, and sheet detectors are disposed at an entrance side and exit sides of the branch path. Specification, page 13, line 14 through page 15, line 7; Figure 2, reference numerals 58A, 58B, 60C, and 60F. In accordance with the invention of claim 1, the controlling step further comprises stopping conveyance or manufacture of the sheets or the sheet products if passage thereof is not detected by a sheet detector at one of the exit sides of the branch path toward which they are conveyed, after a predetermined time after another sheet detector at the entrance side of the branch path detects their passage. Specification, page 27, penultimate line, through page 28, 7th line; Figure 4B, reference numerals 116 and 150.

Claim 6 recites a method for controlling manufacture of a sheet material cut into a plurality of sheets of predetermined size by: cutting the sheet material into the plurality of sheets of predetermined size; detecting passage of the sheets by sheet detectors respectively disposed at entrance and exit sides of the operation section where the sheets enter and exit the operation section;

and controlling conveyance or manufacture of the sheets based on results of detection by the sheet detectors. The cutting step is disclosed, e.g., in the specification on page 10 at lines 3-19. See also Figure 1, reference numeral 20A. The detecting step is disclosed, e.g., in the specification from line 15 on page 14 through line 7 on page 16. See also Figure 2, reference numerals 60A, 60B, and 60C. The control step is disclosed, e.g., in lines 9-23 on page 27. See also Figures 4A and 4B, steps 104 and 150. The operation section comprises a branch path for sorting the sheets being conveyed, and sheet detectors are disposed at an entrance side and exit sides of the branch path. Specification, page 13, line 14 through page 15, line 7, and Figure 2, reference numerals 58A, 58B, 60C, and 60F. Claim 6 specifies that the controlling step includes stopping conveyance or manufacture of the sheets if passage of the sheets is not detected by a sheet detector at one of the exit sides of the branch path toward which the sheets are conveyed, after a predetermined time after another sheet detector at the entrance side of the branch path detects the passage of the sheets. Specification, page 27, penultimate line, through page 28, 7th line; Figure 4B, reference numerals 116 and 150.

Claim 18 recites a method for controlling manufacture of a sheet material cut into a plurality of sheets of predetermined size in a manufacturing line including an operation section for performing a predetermined operation on the sheets while conveying the sheets along a predetermined conveyance path. The method of claim 18 includes: cutting the sheet material into the plurality of sheets of predetermined size; detecting passage of the sheets sheet detectors respectively disposed at entrance and exit sides of the operation section where the sheets enter and exit the operation section; and controlling conveyance or manufacture of the sheets based on results of detection by the sheet detectors. The cutting step is disclosed, e.g., in the specification on page 10 at lines 3-19. See also Figure 1, reference numeral 20A. The detecting step is disclosed, e.g., in the specification from line 15 on page 14 through line 7 on page 16. See also Figure 2, reference numerals 60A, 60B, and 60C.

The control step is disclosed, e.g., in lines 9-23 on page 27. See also Figures 4A and 4B, steps 104 and 150. The operation section of the apparatus used to practice the claimed method includes a sorting section for sorting the sheets and conveying and collecting the sheets into different collection sections. This sorting section includes a sheet conveyance path with a branch gate, the branch gate operating so as to direct a sheet conveyed thereto to one of different paths therefrom. Specification, page 10, lines 21-24; Figure 2, reference numerals 56A and 58A. Sheet detectors are disposed at entrance and exit sides of the branch gate for detecting sheet passage through the branch gate. The controlling step includes determining whether or not any failure has occurred in at least one of conveyance and sorting of the sheets, and whether the failure occurs when a sheet detector disposed at one of the exit sides of the branch path toward which the sheet is conveyed does not detect the sheet in a predetermined time after another sheet detector disposed at the entrance side of the branch path detects the sheet. Conveyance of the sheets is stopped based on this determination of the failure. Specification, page 27, penultimate line, through page 28, 7th line; Figure 4B, reference numerals 116 and 150.

(vi) Grounds of rejection to be reviewed on appeal.

The ground of rejection to be reviewed on appeal is whether claims 1, 6, 7, 18, 21, 22, and 26-28 are obvious under 35 U.S.C. § 103(a) over JP 09-124200 in view of US 4,416,651 to Sullivan et al. ("Sullivan"). The Examiner refers to JP 09-124900 as "Yoshiaki". Yoshiaki is the first name of the second inventor in JP 09-124900. JP 09-124900 was issued to Masao TSURUTA, *et al.* Accordingly that reference will be referred to hereinafter as "Tsuruta".

(vii) *Argument.*

CLAIMS 1, 6, 7, 18, 22, AND 26

The Examiner admits that the primary reference, Tsuruta, is completely silent as to a significant feature of the present invention. Specifically, the Examiner acknowledges near the top of page 3 of the Final Rejection that “Yoshiaki [*sic* – Tsuruta] does not disclose the step of stopping conveyance of the sheet or the processed products when [*sic* – when what?] is not detected by a sheet detector.”

This is a concession that the following provision of Appellants’ claim 1 is neither taught nor suggested by the primary reference: “the controlling further comprises stopping conveyance or manufacture of the sheets or the processed products of the sheets if passage of the sheets or the processed products of the sheets is not detected by a sheet detector at one of the exit sides of the branch path toward which the sheets or the processed products of the sheets are conveyed, after a predetermined time after another sheet detector at the entrance side of the branch path detects the passage of the sheets or the processed products of the sheets.”

This statement by the Examiner also must be taken as an admission that the corresponding feature of claim 6 (which does not refer to the processed products of the sheets) is likewise not found in the primary reference. The Examiner’s statement in this respect must also be taken as an admission that the corresponding feature of claim 18 (“sheet detectors are disposed at entrance and exit sides of the at least one branch gate for detecting a sheet that passes through or has passed through the at least one branch gate; the controlling step includes determining a conveyance status of the sheet based on results of detection by the sheet detectors; a determination is made as to whether or not any failure has occurred in at least one of conveyance and sorting of the sheets, and whether

the failure occurs when a sheet detector disposed at one of the exit sides of the branch path toward which the sheet is conveyed does not detect the sheet in a predetermined time after another sheet detector disposed at the entrance side of the branch path detects the sheet; and the manufacturing line is controlled so as to stop conveyance of the sheets based on the determination of the failure”) is not found in the primary reference.

The Examiner asserts that “Sullivan discloses a similar method of controlling manufacture of product comprising the step of stopping conveyance of the sheet or the processed products when the sheet is not detected.” Applicants respectfully submit that the Examiner’s position as stated involves a misinterpretation of the teachings of the ancillary Sullivan reference.

In Sullivan, an envelope B is conveyed toward a cylinder 12 by a feed belt 18. Column 3, lines 14-15. When a second sensing head or photocell 28 detects an index mark 26 on cam 24 and a first sensing head 20 detects the envelope B, the cylinder 12 rotates, and gum applying pads 14 and 16 apply gum on the envelope B when the envelope B is beneath the cylinder 12. Column 3, lines 44-57. Even when the second sensing head 28 detects the index mark 26, if the first sensing head 20 fails to detect the envelope B, cylinder 12 stops rotating and the envelope B does not have gum applied to it. Column 4, lines 61-68, and column 5, lines 22-29.

Accordingly, in Sullivan the envelope is conveyed in only one direction, and Sullivan does not disclose a branch path. Therefore, Sullivan does not disclose stopping conveyance or manufacture of sheets or of processed products of sheets if passage of the sheets or the processed products of the sheets is not detected by *a sheet detector at one of the exit sides of a branch path* towards which the sheets or the processed products of the sheets are conveyed, after a predetermined time after *another sheet detector at the entrance side of the branch path* detects passage of the sheets or the processed products of the sheets.

In the present invention, the step in question is not simply stopping conveyance when a sheet is not detected. As expressly recited in Appellants' claim 1, for instance, the step in question is "stopping conveyance ... of the sheets ... if passage of the sheets ... is not detected by a sheet detector ... after a predetermined time after another sheet detector at the entrance side of the branch path detects the passage of the sheets". In Appellants' invention, the stopping step is *directly linked* to a detection step, not just to a failure-to-detect step as in Sullivan.

An important feature of the present invention may be understood by reference to Figure 2, Figure 4, and page 27, line 15 through page 28, line 11 of the specification. In the present invention, once a predetermined time has passed after a first sheet detector (e.g., Fig. 4A, step 104; Fig. 2, detector 60A) at the entrance side of the branch path has detected the passage of the sheets or the processed products of the sheets, conveyance or manufacture of the sheets or the processed products of the sheets is stopped (Fig. 4B, step 150) if passage of the sheets or the processed products of the sheets is not detected by a sheet detector (e.g., Fig. 4B, step 110; Fig. 2, detector 60C) at one of the exit sides of the branch path to which the sheets or the processed products of the sheets are conveyed.

Thus, in the present invention, the stopping step in question is a diagnostic step which comes into play only when there is a malfunction in the manufacturing process of Appellants' claims. In contrast, in Sullivan, the stopping step is an essential part of Sullivan's process. Sullivan applies gum to an envelope when an envelope is sensed on a conveyor belt, and does not apply gum when no envelope is sensed on the conveyor belt.

Contrary to the Examiner's assertion, Sullivan does not disclose a "method of controlling manufacture of product comprising the step of stopping conveyance of the sheet or the processed products when the sheet is not detected". Instead, Sullivan discloses *stopping application of a gum*

to an envelope when an envelope is not detected. Sullivan teaches nothing at all about *stopping conveyance of a sheet*, much less instituting such stoppage after a predetermined time after failure to detect a sheet. It is manifest that the combination of references upon which the Examiner relies fails completely to suggest important features of Appellants' invention as claimed.

The decision of the Supreme Court in *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007) supports Appellants' position in this appeal. The holding of the Court makes it clear that simply showing that all of the elements of the application/patent claim are present in the prior art does not necessarily mean that an invention is obvious. The Court stated that "... a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." 82 USPQ2d at 1396. "This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known." 82 USPQ2d at 1396. Part of the obviousness inquiry here must be a consideration of whether there is a reason for the person of ordinary skill in the art to do what is claimed. Accordingly, in general it is important to identify a *reason* that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way they are combined in a claimed new invention. In the present case, the Examiner has not provided a credible reason why a person of ordinary skill in the art would be prompted by the Sullivan envelope processing disclosure to modify the Tsuruta film handling technology.

CLAIMS 21, 27, AND 28

Claims 21, 27 and 28 distinguish over the Tsuruta and Sullivan references for all of the reasons discussed above with respect to claims 18, 1, and 6, from which – respectively – they depend. However, claims 21, 27, and 28 are additionally patentable for the following reasons.

Claims 21, 27, and 28 have the feature of calculating a number of sheets or processed products of sheets at each of terminal ends of a branch path¹, and comparing that number with a number of sheets into which a sheet material is cut. In the present invention, conveyance or manufacture of the sheets or the processed products of the sheets is stopped if passage of the sheets or the processed products of the sheets is not detected by a sheet detector at one of the exit sides of the branch path after a predetermined time subsequent to the time a sheet detector at the entrance side of the branch path detects the passage of the sheets or the processed products of the sheets. Additionally, in claims 27 and 28, the number of the sheets or the processed products of the sheets is counted at each of terminal ends of the branch path.

Therefore, in the present invention, the process at which a failure has occurred can easily be determined. See Applicants' specification, page 3, lines 5-20. In comparison, in Tsuruta, only a number of cuts is checked to determine agreement with a sum of a number of products a number of ejected sheets, and a number of samples for each rod. The ancillary Sullivan reference neither teaches nor suggests the features of claims 21, 27, and 28 outlined above.

SUMMARY AND CONCLUSION

Appellants respectfully submit that each of claims 1, 6, 7, 18, 21, 22, and 26-28 herein defines an invention that differs materially, beneficially, and unobviously from any combination of technology placed in the possession of persons of ordinary skill in the art by the Tsuruta and Sullivan references. Accordingly, the Board is respectfully requested to reverse the rejections of record.

¹ In the present invention, there may be plural branch paths, as illustrated in Figure 2.

Please contact Richard Gallagher (Reg. No. 28,781) at (703) 205-8008 with any questions concerning the present application.

Respectfully submitted,
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(viii) Claims Appendix.

1. A method for controlling manufacture of a sheet material cut into a plurality of sheets of predetermined size, in which the sheets or processed products of the sheets are manufactured by processing the sheets or performing predetermined operations on the processed products of the sheets at each of processing operations or processing sections provided at the processing operations while conveying the sheets along a predetermined line, the method comprising:

cutting the sheet material into the plurality of sheets of predetermined size;

detecting passage of the sheets or the processed products of the sheets by sheet detectors disposed at entrance and exit sides of each of the processing operations or the processing sections where the sheets or the processed products of the sheets enter and exit the processing operations or the processing sections; and

controlling conveyance or manufacture of the sheets or the processed products of the sheets based on results of detection by the sheet detectors,

wherein each of the processing operations or the processing sections comprises a branch path for sorting the sheets or the processed products of the sheets being conveyed, and the sheet detectors are disposed at an entrance side and exit sides of the branch path, and

wherein the controlling further comprises stopping conveyance or manufacture of the sheets or the processed products of the sheets if passage of the sheets or the processed products of the sheets is not detected by a sheet detector at one of the exit sides of the branch path toward which the sheets or the processed products of the sheets are conveyed, after a predetermined time after another sheet detector at the entrance side of the branch path detects the passage of the sheets or the processed products of the sheets.

6. A method for controlling manufacture of a sheet material cut into a plurality of sheets of predetermined size applied to a manufacturing line including an operation section for performing a predetermined operation on the sheets while conveying the sheets along a predetermined conveyance path, the method comprising:

cutting the sheet material into the plurality of sheets of predetermined size;

detecting passage of the sheets by sheet detectors respectively disposed at entrance and exit sides of the operation section where the sheets enter and exit the operation section; and

controlling conveyance or manufacture of the sheets based on results of detection by the sheet detectors,

wherein the operation section comprises a branch path for sorting the sheets being conveyed, and the sheet detectors are disposed at an entrance side and exit sides of the branch path, and

wherein the controlling further comprises stopping conveyance or manufacture of the sheets if passage of the sheets is not detected by a sheet detector at one of the exit sides of the branch path toward which the sheets are conveyed, after a predetermined time after another sheet detector at the entrance side of the branch path detects the passage of the sheets.

7. The method according to claim 6, wherein the predetermined operation comprises sorting the sheets.

18. A method for controlling manufacture of a sheet material cut into a plurality of sheets of predetermined size applied to a manufacturing line including an operation section for performing

a predetermined operation on the sheets while conveying the sheets along a predetermined conveyance path, the method comprising:

cutting the sheet material into the plurality of sheets of predetermined size;

detecting passage of the sheets sheet detectors respectively disposed at entrance and exit sides of the operation section where the sheets enter and exit the operation section; and

controlling conveyance or manufacture of the sheets based on results of detection by the sheet detectors,

wherein the operation section includes a sorting section for sorting the sheets and conveying and collecting the sheets into different collection sections, the sorting section including a sheet conveyance path with at least one branch gate, the at least one branch gate operating so as to direct a sheet conveyed thereto to one of different paths therefrom;

sheet detectors are disposed at entrance and exit sides of the at least one branch gate for detecting a sheet that passes through or has passed through the at least one branch gate;

the controlling step includes determining a conveyance status of the sheet based on results of detection by the sheet detectors;

a determination is made as to whether or not any failure has occurred in at least one of conveyance and sorting of the sheets, and whether the failure occurs when a sheet detector disposed at one of the exit sides of the branch path toward which the sheet is conveyed does not detect the sheet in a predetermined time after another sheet detector disposed at the entrance side of the branch path detects the sheet; and

the manufacturing line is controlled so as to stop conveyance of the sheets based on the determination of the failure.

21. The method according to claim 18, wherein one of the collection sections is disposed, together with a counter for counting a number of the sheets collected at the respective collection section, at each of terminal ends of the branch paths,

the sheets being produced by cutting to predetermined lengths a long material wound in a roll,

the method further comprising calculating a number of produced sheets based on a length of the material drawn out from the roll, and comparing a number of the sheets collected in the collection sections with the calculated number of produced sheets when conveyance of the sheets is stopped.

22. The method according to claim 18, wherein at least one of the paths branched from the at least one branch gate directs the sheet toward a next branch gate.

26. The method according to claim 18, wherein at least one of wrapping and packaging the collected sheets is carried out to provide wrapped and/or packaged sheets, the method further comprising the steps of counting a number of sorted sheets and the numbers of at least one of the wrapped and packaged sheets, respectively, and comparing the number of sorted sheets and the number of the at least one of wrapped and packaged sheets when conveyance of the sheets is stopped.

27. The method according to claim 1, further comprising:

calculating a number of the plurality of sheets into which the sheet material is cut;

calculating a number of the sheets or the processed products of the sheets at each of terminal ends of the branch path; and

comparing the number of the plurality of sheets and the number of the sheets of the processed products of the sheets when conveyance or manufacture of the sheets or the processed products of the sheets is stopped.

28. The method according to claim 6, further comprising:

calculating a number of the plurality of sheets into which the sheet material is cut;

calculating a number of the sheets at each of terminal ends of the branch path; and

comparing the number of the plurality of sheets and the number of the sheets when conveyance or manufacture of the sheets is stopped.

(ix) Evidence Appendix.

No separate evidentiary materials are relied upon herein.

(x) Related proceedings Appendix.

There are no related proceedings.